

## DS2 – Building a better partnership

*World-leading communications chip set designer finds its ideal development partner in Norcott EMS and watches the benefits roll in*

*Design of Systems on Silicon S.A. (DS2) is the world's leading supplier of the 200 Mbps technology that enables home networking and broadband access over power line, coaxial cable, and telephone wire. DS2 pioneered the industry with the introduction of its 200 Mbps chipsets, creating the fastest and highest performance solution for simultaneous data, digital audio and high-definition video*

Operating in the innovation hungry communications market means DS2 must constantly invest in the design and development of new chips in order to maintain its world leading position. In addition DS2 must also provide reference designs to permit potential customers to evaluate the technology in a 'real-world' environment.

This left DS2 with a twin challenge. Its success as an innovator depends on its ability to constantly develop new PLC modem designs, yet it must also prove the credibility of these designs through providing reliable reference designs to often aggressive development schedules.

Realising it did not have the time or expertise to produce these small to medium sized batches of prototypes, DS2 began the search for a partner manufacturer, which it found in contract manufacturing specialist, Norcott EMS. It could not only assemble high quality reference boards to tight deadlines and manage DS2's component logistics, but crucially it could also provide best practice advice on their design.

DS2 planning and purchasing manager, Mayte Bacete, emphasises how important it is for external suppliers to take on urgent work and deliver it to deadline: "Our customers demand that the solutions we provide them with are of an extremely high quality.

"This meant that when we were looking for a supplier who could deliver small to medium batches of our various prototypes, we needed someone whose strong design background would guarantee an understanding of our products and whose whole ethos was built around high quality and excellent service."

### The Solution

DS2 first encountered Norcott at a time when it urgently needed to assemble a set of development PCBs critical for the verification of a key chip design. These designs contained four high density Ball Grid Arrays (BGA) that required the kind of high quality assembly process Norcott is able to provide.

Mayte comments: "We chose Norcott EMS because they were prepared to offer the right service and associated guarantees. Their experience and performance for other customers had been outstanding and their turn-around time (TAT) in BGA assembly was excellent."

Once appointed, Norcott was quickly able to add value. Its in-depth knowledge of complex Surface Mount Technology (SMT) assembly meant it could play a key role in refining designs and improving board yields as well as in delivering the finished product in good time.

### Benefits

Norcott managing director Pete Lomas comments: "Fundamentally, we saw this project as being a perfect fit between DS2's requirements and our capabilities.

Norcott supported DS2 design engineers offering its manufacturability expertise, allowing them to focus on functionality. In addition,

engineers on how a board can be improved upon in any way, they have always demonstrated their understanding of the whole process by giving us salient advice and enabling us to refine our prototypes where possible."

DS2's Jose Manuel Mari puts this situation into context, commenting: "I believe Norcott's support was crucial for DS2 in the early stages of the company. As DS2 released the first generation of chips in volume quantities, we needed to provide a set of reference designs to our customers that could be manufactured in high volumes. Norcott's at-hand (and sometimes on-site) support provided DS2 with the necessary guidelines to turn a line of prototype modems into a line of ready-to-market products suitable for manufacture."

Here DS2 was facing demands for large quantities of reference boards from customers – often thousands at a time. For cost reasons these boards were manufactured in the Far East, with longer lead times. At the same time, however, DS2 customers would also make urgent interim requests for boards where key trials demanded delivery at short notice.

Yet again, Norcott could add value here. Its rapid assembly and stockholding capabilities meant it could take reference board manufacture into mid-volume quantities where necessary. Consequently, DS2 was able to meet its customers' aggressive delivery requirements while keeping reference board manufacturing costs at optimum level.

Since then, reference boards have played a major role in demonstrating the functionality of DS2's product range and contributed to the companies significant growth. Its PLC chip sets



**"Since this initial project, the relationship fostered between both parties has continued to grow and yield significant benefits for the companies."** Jose Manuel Mari - DS2

Norcott provided valuable expertise to deal with the multitude of issues that moving to medium volume production creates.

"This is where Norcott was able to add value and continues to do so even today. Whenever DS2 sends us a board design we are able to look at it with the eyes of PCB design and assembly experts, feeding back comments and suggest areas for improvement, operating as much as a source of expertise as a supplier.

"Entering into this dialogue allowed us to freely discuss design issues which ultimately improved the yield and reliability of the end product."

Mayte continues: "The Norcott team is primarily involved in assembling our reference designs and unless there are any extenuating circumstances, which are always flagged up in advance, we usually see these projects turned around in three, five or ten days.

"That in itself is impressive but the service goes further still. The Norcott team is extremely flexible and if ever there has been a reason to re-visit a design issue or to advise our

are now widely used in consumer appliances, notably those distributed by Spanish-based telecoms giant Telefonica.

Pete Lomas says: "Thanks to the success we experienced in readying DS2's first and second generation technology for market we were able to lay a solid foundation for the development of its future chips sets. By now we were so comfortable working with one another that DS2 would come to us with new ideas during development, asking for advice and guidance on how these could be applied to PCB designs.

"As we were there at the beginning, we continue to act as a resource of best practice advice for the company, and provide best practice advice for RoHS compliance as the company progresses towards fully lead-free processes.

"The fact is that DS2 is now producing world-class reference designs. Here at Norcott we are delighted to have played a part in making that possible and look forward to continuing our relationship as time goes on."

[www.norcottems.co.uk](http://www.norcottems.co.uk)